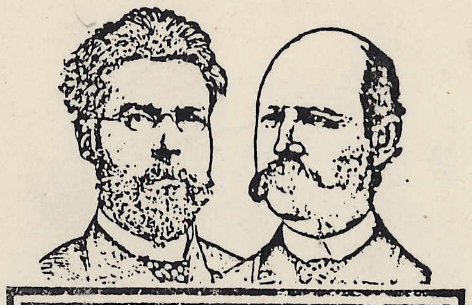

Beagle Bros
Micro Software Inc.

double-take

2-Way-Scroll Multiple-Utility Disk

by MARK SIMONSEN

for Apple® II, II+ and IIe Computers

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4315 Sierra Vista, San Diego, California 92103

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double-take

by Mark Simonsen

DOUBLE-TAKE is a collection of 23 machine language routines that make your Apple more flexible and easier to use. All routines are loaded into memory and "hidden" when you boot the Double-Take disk or BRUN the appropriate Double-Take program.

Loading Double-Take

Put Double-Take in memory in one of three ways—

1. **Boot the Double-Take disk** (or a backup copy).

   or...

2. **RUN the "HELLO" program** on the Double-Take disk. (HELLO simply chooses and BRUNs one of the four versions of "DOUBLE-TAKE"; see page 6.)

   or...

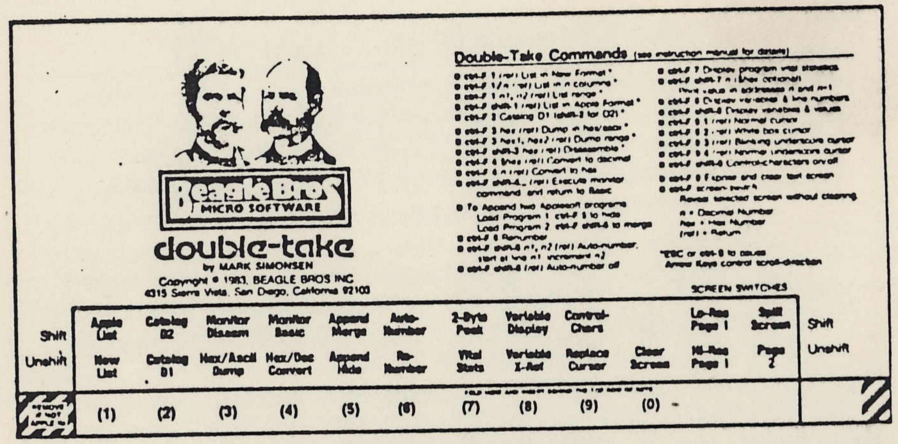
3. **BRUN the appropriate "DOUBLE-TAKE" program.** This program may be on one of *your* disks, so that *your* greeting ("Hello") program can BRUN it (see page 6 to determine which of the four versions of Double-Take is appropriate for your situation).

You can transfer any or all of Double-Take's features to *any* normal DOS 3.3 disk, so that when *that* disk is booted, Double-Take will be installed in memory (see page 6).

Double-Take is loaded as 5 color-coded MODULES, each containing from 4 to 6 features. You may load as many modules as you want, depending on how much memory you have to spare.

To choose the modules to be loaded, RUN the program called "CONFIGURE DOUBLE-TAKE" (see page 5). This program will rewrite Double-Take so only the modules you want will load into memory.

To remove Double-Take from your Apple, boot a non-Double-Take disk or RUN the "REMOVE DOUBLE-TAKE" program.



Double-Take Commands

BEAGLE BROS MICRO SOFTWARE

double-take

by MARK SIMONSEN

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SCREEN SWITCHES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(0)			
Shift	Apple List	Catalog D2	Monitor Disasm	Monitor Basic	Append Merge	Auto-Number	2-Byte Peek	Variable Display	Control-Chars		Lo-Res Page 1	Split Screen	Shift
Unshift	New List	Catalog D1	Hex/Ascii Dump	Hex/Dec Convert	Append Hide	Re-Number	Vital Stats	Variable X-Ref	Replace Cursor	Clear Screen	Hi-Res Page 1	Page 2	Unshift

The Double-Take Keychart

If your Apple is not a IIe, fold back or remove the two corner pieces on your keychart.

Fold and insert the keychart that came with your disk behind the top row of keys on your Apple. The keychart serves as a guide to all 23 Double-Take features, and saves you from having to memorize 23 different commands.

Activating Double-Take

Control-F is typed by pressing the CONTROL (or CTRL) key and holding it down while pressing "F". Immediately release both keys.

With Double-Take in memory, type **CONTROL-F** (do not hit Return). Control-F puts you in the Function-Select Mode, presenting you with the word "Function?" followed by a cursor.

]FUNCTION? ☐

If you type control-F by mistake, type control-X or any non-top-row key to escape.

Now press the key corresponding to the function you desire. All function keys are on the top row of your Apple keyboard and labeled by the keychart. For example, on the keychart above the 1-key you will see:

Shift: **APPLE LIST**
Unshift: **NEW LIST**

Typing "1" (after typing control-F) will activate the New-List feature. Or typing "!" (shift-1) will activate the Apple-List feature (details on page 8). Every key except the zero-key has a Shift and Unshift option.

2-WAY-SCROLL

Six of Double-Take's functions provide 2-Way Scrolling—New List, Apple List, Hex/Ascii Dump, Monitor Disassemble, and Catalog D1 & D2. All four List-scrolls work alike. Catalog scrolling works a bit differently; see page 9.

START a List or Catalog by typing **control-F** and the appropriate key (1, 2, 3, shift-1, shift-2, or shift-3) from your keychart. Scrolling will begin in the forward direction.

PAUSE during a scroll with **control-S** or **ESC**. Press any key to continue in the same direction (see page 9 for Catalog exceptions).

EXIT a Listing or Catalog with **control-C**. Listings may be stopped with control-C whether they are in motion or not.

SCROLL-DIRECTION is controlled with the **Arrow Keys.** If you are viewing a Catalog or listing a program and want to see what has gone off the top of the screen, press the LEFT-Arrow key. To change scroll direction back to normal, press the RIGHT-Arrow key. There is no need to pause when you change directions (you won't strip your Apple's gears). Exception: Users of certain versions of GPLE may need to disable the GPLE typeahead buffer with the "CONFIG PLE" program (on the GPLE disk). Otherwise a pause before scroll-direction change *will* be necessary.

Upon reaching the end of a listing (top or bottom), a cursor will appear, waiting for you to indicate whether you want to quit or continue listing in the opposite direction. If you had been listing backwards, typing a Right-Arrow would list forward, while any other key will end the listing. If the list-direction had been forward, a Left-Arrow would start reverse listing and any other key would terminate.

If you have an Apple IIe, you may use the **Up-Arrow** (control-K) in place of the Left-Arrow and the **Down-Arrow** (control-J) in place of the Right-Arrow. Use the arrow combination with which you are most comfortable.

If you type "LIST" instead of **control-F 1** or **control-F I**, you will not be able to use the 2-Way Scroll feature. The same is true of dumping and listing in the monitor. Unless you use Double-Take's control-F commands, you won't get the fringe benefits.

THE FIVE DOUBLE-TAKE MODULES

To save some memory space, you may want to reconfigure Double-Take so that only certain color modules (or all five) load when you boot. RUN the program called "**CONFIGURE DOUBLE-TAKE**" to determine which modules will load. Follow the instructions on the screen.

The particular color modules that Double-Take will load is determined by the CONFIGURE DOUBLE-TAKE program.

If, for example, you have no need for Renumber, Append, and Auto-Number, then you can RUN CONFIGURE DOUBLE-TAKE, select the "Configuration Menu" and select YES for all of the modules except the third one (Blue), saving yourself 2½K of memory (see below). Press ESC to exit to the main menu and select the "Save Configuration" option. You will be asked which version of DOUBLE-TAKE you are saving. Read the next section to determine which version is appropriate for your system.

RED MODULE (optional)	**2¼ K**
New List & Apple List	
Catalog D1 & D2	
ORANGE MODULE (optional)	**1 K**
Hex/Ascii Dump	
Monitor Disassemble	
Hex/Decimal Convert	
Monitor Basic	
BLUE MODULE (optional)	**2½ K**
Append Hide & Merge	
Renumber	
Auto-Number	
YELLOW MODULE (optional)	**1¾ K**
Vital Statistics	
2-Byte Peek	
Variable Cross-Reference	
Variable Display	
Replace Cursor	
Control-Characters	
SCREEN SWITCHES (not optional)	**½ K**
Total	**8 K**

Double-Take's 5 modules and 23 features occupy 8K of memory. In comparison, DOS 3.3 uses about 10K.

The largest possible configuration of Double-Take is 8K (the way it was configured on the original Double-Take disk). The Screen Switches are loaded with Double-Take's "Command Handler", the animal that passes control to each of the modules, depending on the command you type. This module is required in all configurations of Double-Take.

THE FOUR DOUBLE-TAKE PROGRAMS

There are four versions of DOUBLE-TAKE on your Double-Take disk. Each one is designed to operate with a particular combination of our favorite programs— DOS, ProntoDOS and GPLE. Just in case you haven't been introduced...

DOS is Apple's Disk Operating System. It occupies about 10K of memory, either in normal RAM or in a Language Card or Apple IIe "bank-switched" RAM.

ProntoDOS is Beagle Bros' high-speed DOS utility (written by Apple Ace, Tom Weishaar) that triples the speed of loading and saving files, moves DOS to the Language Card (freeing up 10,000 extra bytes of memory space), and adds useful commands to DOS (not to mention 15 extra sectors of disk storage per disk). If you use it, you won't want to be without it.

GPLE®, the Global Program Line Editor, is published by Synergistic Software. We think it is the best Applesoft line editor available, and frankly, couldn't program without it. GPLE can reside in normal memory or on a Language Card (alone, with DOS or with ProntoDOS).

Both GPLE and ProntoDOS feature programs which will transfer DOS to a Language Card or IIe bank-switched memory, freeing over 10,000 bytes of usable memory.

If you RUN the program called "HELLO" on the Double-Take disk, it will determine which combination of DOS, ProntoDOS and GPLE are in memory, then BRUN the appropriate version of DOUBLE-TAKE. (Note: If you *boot* the Double-Take, disk, only *normal DOS and Double-Take* will be in memory.)

The Double-Take HELLO program makes the final decision about which version of Double-Take to load. List HELLO to see how it works.

1 **DOUBLE-TAKE** is used when you have a "naked Apple" with DOS or ProntoDOS in its standard location and *no GPLE* in memory. The Double-Take HELLO program will automatically load DOUBLE-TAKE between DOS and its buffers.

2 **DOUBLE-TAKE.48** is used when DOS or ProntoDOS is in normal memory and GPLE.48 is also in memory. The Double-Take HELLO program will automatically load DOUBLE-TAKE.48 between GPLE and the DOS buffers.

3 **DOUBLE-TAKE.LC** is used when DOS or ProntoDOS is in normal memory and GPLE.LC is on the Language Card. The Double-Take HELLO program will automatically load DOUBLE-TAKE.LC in normal memory between DOS and the DOS Buffers.

4 **DOUBLE-TAKE.DM** is used when DOS or ProntoDOS is on the Language Card or IIe bank-switched memory, (put there by GPLE or ProntoDos). The Double-Take HELLO program will automatically load DOUBLE-TAKE.DM in normal memory above HIMEM.

DOUBLE-TAKE.DM may be used when GPLE.DM is in memory.

Confused? No problem. Double-Take's HELLO program figures out for you which version of Double-Take to run (actually *BRUN*). If you want to use your *own* Hello program you must incorporate Double-Take's HELLO commands into yours *or* know in advance which setup will be in the machine before you BRUN one of the four DOUBLE-TAKEs.

All you need on a disk to activate Double-Take is the version of Double-Take that corresponds to your normal set up; DOUBLE-TAKE, DOUBLE-TAKE.48, DOUBLE-TAKE.LC or DOUBLE-TAKE.DM. You or your Hello program can simply BRUN one of these programs, and you're in business.

WARNINGS

- **DO NOT BOOT THE DOUBLE-TAKE DISK** if you are using Double-Take in combination with GPLE or ProntoDos. Instead just RUN HELLO (that's *Double-Take's* HELLO), or BRUN one of the DOUBLE-TAKE programs (see above).
- **DO NOT ATTEMPT TO USE THE AMPERSAND** command while Double-Take is in memory; Double-Take uses it extensively (first come, first served!).

Use CALL 1016 instead of "&" to reconnect Double-Take and/or GPLE.

- **DO NOT USE HEX ADDRESSES $3B0-3FF.** Double-Take, DOS and the Monitor use this address range. And although you *can* use address $300-3AF, Double-Take's backward-scroll routine will *occasionally* overwrite part of this area during a list.

NEW LIST (control-F 1)
APPLE LIST (control-F !)

Typing **control-F 1** (Return) or **control-F !** (Return) lists the Applesoft program currently in memory in Double-Take's NEW LIST Format or in APPLE LIST (normal) Format. NEW LIST lists each program statement on a new line, making programs much easier to read and follow.

Note: Beagle Bros' Utility City disk features a program called XLISTER that lists Applesoft programs in "New List" format with some additional features not possible with Double-Take's list routine— printer page breaks, indented for-next loops and called-out if-then statements. XLISTER is much slower than Double-Take's lister and does not feature 2-Way Scrolling.

2-Way List Scrolling

Both Apple List and New List use the Arrow Keys to control 2-Way-Scrolling, allowing you to search through listings in both directions. See page 4 for details.

If you type "LIST", your Apple will list as usual, with no special features.

Typing **control-F 1** or **control-F !** will print **"]LIST"** on the screen. You may then press **Return** for a full-program LIST, *or* specify line numbers and/or print-width for printer listings.

Syntax (same as Apple's LIST syntax except for /print-width):

```
]LIST [line#1] [-line#2] [/print-width]
]LIST [line#1] [,line#2] [/print-width]
```

Examples (all feature 2-Way Scroll):

]LIST
(Type **control-F 1** [or !] **Return**)
Lists entire program in 40-column width.

]LIST 100,200 (or **100-200** or **100-** or **-200**)
(Type **control-F 1** [or !] **100,200 Return**)
Lists the range of lines specified.

Printer Listings

To list to your printer in any column-width, you must first turn the printer on with a **PR#*slot***, then type **control-F 1** (or !) followed by a slash (/) and a column-width.

After a printer listing, type "PR#0" to disconnect the printer.

Examples:

]LIST /80
(Type **control-F 1** [or !] **/80 Return**)
Lists an entire program in 80-column format. Any width, from /20 to /255, may be used. Selecting a print width temporarily de-activates backward scroll capabilities (even the most sophisticated printer would *choke* if asked to scroll backwards!).

The valid range for print width is 20-255. Numbers larger than 255 are treated as *mod 256*.

]LIST 100,200/70
(You type **control-F 1** [or !] **100,200/70 Return**)
Lists a range of lines in 70-columns.

Note: "Shift-" notation is used in this manual when Apple II and IIe keys differ. Shift-2, for example, is a Quote Mark (") on older Apples, and an At-Sign (@) on the IIe. Just follow your keychart for commands, and don't worry; Double-Take knows what kind of Apple you are using.

CATALOG D1 (control-F 2)
CATALOG D2 (control-F shift-2)

Typing **control-F 2** or **control-F shift-2** catalogs the disk in Drive 1 or 2 respectively, showing the Free Sectors remaining on that disk. The Disk Volume heading and Free Sector messages will remain at the top of the screen during the entire catalog. Deleted files "appear" as blank lines in the catalog (the file name of the next file written to the disk will replace the first blank line). Typing the normal CATALOG command will also produce all special Catalog features including 2-Way Scroll. To catalog a new slot, type the normal DOS command (for example, **CATALOG S5,D1**).

Double-Take's Free Sector routine will supersede Pronto-DOS's Free Sector routine.

2-Way Catalog Scrolling

While in the middle of a Catalog, you may scroll 21 file names backward by pressing the **Left-Arrow** key, or forward by pressing the **Right-Arrow key** (or *any* key). The Left-Arrow is ignored at the beginning of a Catalog, just as the Right-Arrow is ignored at the end, preventing you from prematurely ending a Catalog. To exit a Catalog at any time, type **control-C**.

If you have an Apple IIe, you may optionally use its Up- and Down-Arrow keys.

HEX/ASCII DUMP (control-F 3)

Typing **control-F 3**, plus the appropriate hex numbers, dumps the contents of the specified range of memory to the screen or printer. Each line will show the beginning address of that line in memory, eight hex bytes, and their eight ASCII equivalents. All control-characters are represented by periods.

2-Way Scrolling

Hex/Ascii dumps may be scrolled in both directions. See page 4 for details on pausing, exiting and changing scroll direction.

Typing **control-F 3** will print "**]H/A DUMP $**" on the screen. You must then enter the hex address of the start-address and (optional) end-address, then press Return.

Syntax:
]H/A DUMP $ [hex address 1] [.hex address 2]

Don't type the dollar-sign. Double-Take does it for you.

Examples (both feature 2-Way-Scroll):
]H/A DUMP $ 0.FF
(You type **control-F 3 0.FF Return**)
Displays memory locations 0-255 ($00-$FF).

]H/A DUMP $ 800
(You type **control-F 3 800 Return**)
Begins dumping at $800 and continues until stopped.

Beginners: As an experiment, load an Applesoft program and do a Hex/Ascii dump starting at location $800.

MONITOR DISASSEMBLE (control-F #)

Typing **control-F #** and the appropriate hex start-address lists disassembled machine language instructions to screen or printer, starting at the specified address.

2-Way Scrolling

Monitor Disassemblies feature 2-Way Scrolling. See page 4 for details on pausing, exiting and changing scroll-direction. Reverse-scrolling of Disassemblies becomes slower as you get further away from the starting point. Re-start at a new location if this becomes a problem.

Typing **control-F #** will print "**]DISASM $**" on the screen. You must enter the start-address for the disassembly and press Return.

Syntax:
]DISASM $ [hex address]

Don't type the dollar-sign. Double-Take does it for you.

Example (features 2-Way-Scroll):
]DISASM $ F800
(You type **control-F # F800 Return**)
Disassembles and displays code starting at address $F800.

HEX/DECIMAL CONVERT (control-F 4)

Typing **control-F 4**, and the appropriate numbers, prints the hex equivalent of any decimal number, and vice versa.

Typing **control-F 4** will print "**]CONVERT**" on the screen. You may then enter either a decimal number (positive or negative) *or* a dollar-sign ($) followed by a hex number.

Syntax:
]CONVERT [$ hex-number]
]CONVERT [(-) decimal-number]

Examples:
]CONVERT $300
(You type **control-F 4 $300 Return**)
Prints "768", the decimal equivalent of $300.

]CONVERT 65535
(You type **control-F 4 65535 Return**)
Prints "$FFFF", the hex equivalent of 65535.

]CONVERT -151
(You type **control-F 4 -151 Return**)
Prints "$FF69", the hex equivalent of -151.

MONITOR BASIC (control-F $)

Typing **control-F $** allows you to enter one line (up to 255 characters) of monitor instructions for execution, after which you will be automatically returned to Basic.

Typing **control-F 4** will present you with the monitor's asterisk-prompt (*). You may then enter any legal monitor command.

If you enter illegal machine code, the monitor will beep and give you another chance without returning you to Basic. (To return to Basic on your own, type control-C and Return).

Example:
***300: 20 ED FD**
(You type **control-F $ 300: 20 ED FD Return**)
Changes three bytes and returns you to Basic.

APPEND HIDE (control-F 5)
APPEND MERGE (control-F %)

Double-Take lets you append two Applesoft programs or partial programs. You must be sure the two programs are numbered the way you want them, *before* you merge with this four-step process:

1. Load Program 1 into memory.
2. Type **control-F 5** to "hide" Program 1.
3. Load Program 2.
4. Type **control-F %** to merge the two programs.

If there are any errors, such as duplicate line numbers, both programs will remain as they were prior to the Merge command. This gives you the opportunity to renumber the conflicting line or take other steps (like deleting a line) to solve the problem.

Example:

Load an Applesoft program or subroutine—

```
10  REM PRINT GROCERY LIST
20  TEXT : HOME : NORMAL : GOSUB 2000: END
30  DATA DOGFOOD,PRETZELS,SODA POP
40  DATA TV GUIDE,NATIONAL ENQUIRER
2000  FOR I = 1 TO 5: READ ITEM$: PRINT ITEM$: NEXT
      : RETURN
```

Hide it by typing **control-F 5**, and load a second program—

```
1000  REM CENTER A$
1010 HT =  INT (20 - ( LEN (A$) / 2)) + 1: IF HT <  =
     0 THEN HT = 1
1020  HTAB HT: PRINT A$: RETURN
```

Now merge the hidden subroutine into the second program by typing **control-F %**. In the example, Lines 1000-1020 will now be between lines 40 and 2000:

```
10  REM PRINT GROCERY LIST
20  TEXT : HOME : NORMAL : GOSUB 2000: END
30  DATA DOGFOOD,PRETZELS,SODA POP
40  DATA TV GUIDE,NATIONAL ENQUIRER
1000  REM CENTER A$
1010 HT =  INT (20 - ( LEN (A$) / 2)) + 1: IF HT <  =
     0 THEN HT = 1
1020  HTAB HT: PRINT A$: RETURN
2000  FOR I = 1 TO 5: READ ITEM$: PRINT ITEM$: NEXT
      : RETURN
```

RENUMBER (control-F 6)

Typing **control-F 6** initiates re-numbering of all or part of the Applesoft program in memory, simultaneously updating all GOTO's, GOSUB's and the like. Double-Take's Renumber routine will even let you *move program lines around* to different parts of your program.

You can exit Renumber by entering a line number greater than 63999 or an increment of zero.

After typing **control-F 6**, you will be asked to enter (1) the old line number where renumbering should start, (2) the old line number where renumbering should stop, (3) the new number with which re-numbering should start, and (4) the increment between new line numbers. Hitting **Return** after any question will default to the value displayed on the screen. Load a dummy program and play around. You'll soon get the hang of it.

While renumbering, the old and new line numbers will be displayed on the screen.

WARNING: Since Double-Take's Renumber routine is capable of *moving* program lines to different parts of a program, it is also capable of *shuffling* a program, making it inoperable. This is only a problem if you are renumbering *part* of a program. Always SAVE your original until you are sure your renumbered version works.

Here is a sample program before renumbering.

```
10  HGR : HCOLOR= 3
30  FOR I = 80 TO 160: HPLOT 0,I TO 279,I: NEXT
60  HCOLOR= 0:CX = 140:CY = 50
90  FOR I = 1 TO 11: READ X,Y: HPLOT CX,CY TO X,Y: NEXT
100  DATA 0,90,0,100,0,120,0,160,70,160,140,160,210,16
     0,279,160,279,120,279,100,279,90
140 I = 1
145  IF 80 + I ^ 2.5 > 160 THEN 165
150  HPLOT 0,80 + I ^ 2.5 TO 279,80 + I ^ 2.5
160 I = I + 1: GOTO 145
165  END
```

Same program after renumbering.

```
10  HGR : HCOLOR= 3
20  FOR I = 80 TO 160: HPLOT 0,I TO 279,I: NEXT
30  HCOLOR= 0:CX = 140:CY = 50
40  FOR I = 1 TO 11: READ X,Y: HPLOT CX,CY TO X,Y: NEXT
50  DATA 0,90,0,100,0,120,0,160,70,160,140,160,210,160
     ,279,160,279,120,279,100,279,90
60 I = 1
70  IF 80 + I ^ 2.5 > 160 THEN 100
80  HPLOT 0,80 + I ^ 2.5 TO 279,80 + I ^ 2.5
90 I = I + 1: GOTO 70
100  END
```

AUTO-NUMBER (control-F shift-6)

Typing **control-F shift-6** will initiate Double-Take's Auto-Number routine. Auto-Number is used when you are entering a Basic program from the keyboard and are too lazy to type in (and remember) your own line numbers. Once initiated, line numbers are "typed" by pressing the Space Bar. Auto-Number is turned off by typing **control-F shift-6 Return**.

Typing **control-F shift-6** will print "]AUTO-NUM" on the screen, waiting for you to hit **Return** to turn Auto-Number off or enter the start and increment numbers.

Syntax:

```
]AUTO-NUM [start line#] [, increment]
```

Examples:

```
]AUTO-NUM 100
```

(Type **control-F shift-6 100 Return**)
Sets up automatic line numbering to begin with line number 100. Since no increment was specified, it will default to 10; the next consecutive line numbers after 100 will be 110, 120, 130, etc.

```
]AUTO-NUM 100,20
```

(Type **control-F shift-6 100, 20 Return**)
Sets up 100 as the starting line number and 20 as the increment between numbers.

```
]AUTO-NUM , 5
```

(Type **control-F shift-6 , 5 Return**)
No starting number is specified, so the default of 10 will be used. The increment is 5.

Line numbers greater than 63999 and smaller than 65536 will be accepted by Auto-Number but be *rejected* by Applesoft with a ?SYNTAX ERROR when entered.

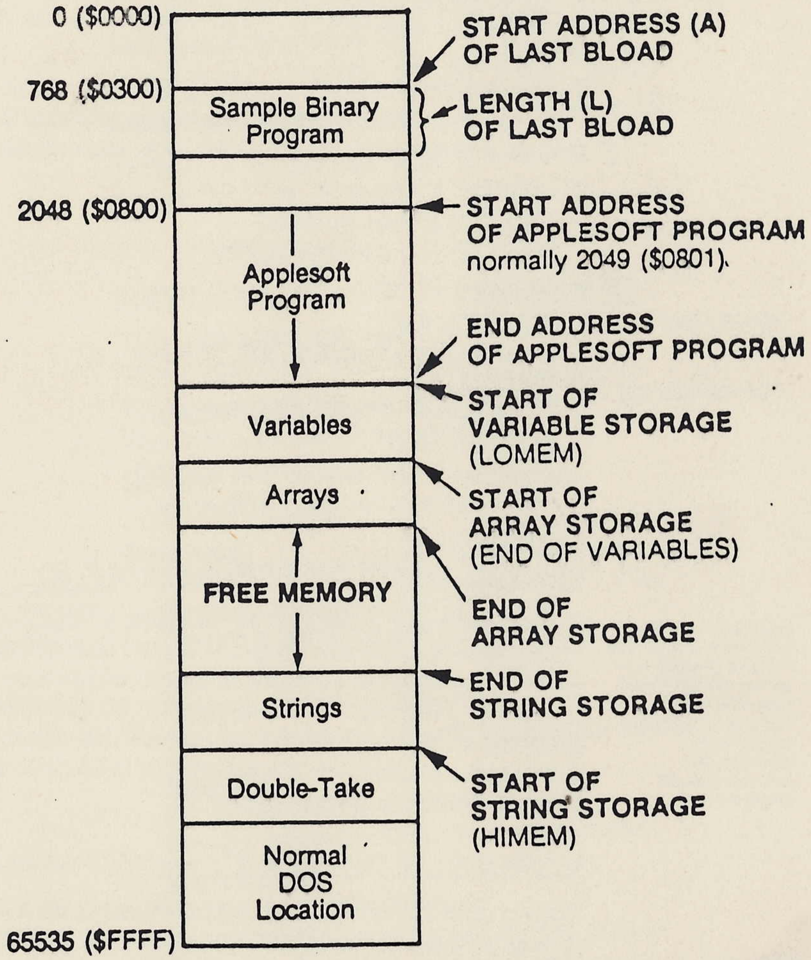
If Return is pressed with no numbers entered, auto-numbering will be turned off. Illegal input (e.g. letters, special characters, etc.) will cause the starting number and increment to default to 10.

Once auto line-numbering is set up you must activate it by pressing the **Space Bar** upon receiving the Basic prompt. This lets you enter Basic and DOS commands without line numbers getting in your way. If you should press the Space Bar accidently you can backspace over the number, or type control-X or Return. BEWARE that hitting Return with a line number entered will cause any line with that number to be deleted.

VITAL STATISTICS (control-F 7)

Typing **control-F 7** displays decimal and hex data for the Applesoft program in memory—

Here is a map showing how Vital Statistics relate to a sample Applesoft program in memory.


0 ($0000)
768 ($0300)
2048 ($0800)
65535 ($FFFF)
Sample Binary Program
Applesoft Program
Variables
Arrays
FREE MEMORY
Strings
Double-Take
Normal DOS Location
START ADDRESS (A) OF LAST BLOAD
LENGTH (L) OF LAST BLOAD
START ADDRESS OF APPLESOFT PROGRAM normally 2049 ($0801).
END ADDRESS OF APPLESOFT PROGRAM
START OF VARIABLE STORAGE (LOMEM)
START OF ARRAY STORAGE (END OF VARIABLES)
END OF ARRAY STORAGE
END OF STRING STORAGE
START OF STRING STORAGE (HIMEM)

Note: The Start and Length of the last BLOAD, may be meaningless (or just plain *incorrect*) depending on commands issued since the BLOAD. For instance, Length is scrambled when an Applesoft program is loaded.

See your Applesoft Manual for details on using these values.

2-BYTE PEEK (control-F shift-7)

Typing **control-F shift-7** prints the two-byte value found at the address entered. This command is equivalent to doing a PEEK(A) + PEEK(A+1) * 256 where A is the Address entered.

Typing **control-F shift-7** will print "]PEEK(2)" on the screen. You may then enter a decimal address (positive or negative) *or* a dollar-sign ($) followed by a hex address.

Syntax:
]PEEK(2) [$ hex number]
]PEEK(2) [(-) decimal number]

Examples:
]PEEK(2) $67
(Type **control-F shift-7 $67 Return**)
]PEEK(2) 54
(Type **control-F shift-7 54 Return**)
]PEEK(2) -530
(Type **control-F shift-7 -530 Return**)

VARIABLE CROSS-REFERENCE (control-F 8)

Typing **control-F 8** displays all variables, strings and arrays in the current Applesoft program, sorted alphabetically and followed by the numbers of the lines in which they appear. If there is no program in memory or no variables in the program in memory then nothing will be displayed. To dump a cross-reference to your printer in 40-columns, type PR#*slot* (Return), then **control-F 8**.

Double-Take will not allow X-Reference and Variable Display printer listings wider than 40-columns. Turning off screen output with control-I_N will also turn off Double-Take.

VARIABLE DISPLAY (control-F shift-8)

Typing **control-F shift-8** will display all variables and strings (not arrays; see below) in memory and their current values, in the order in which they were allocated. If there is no program in memory OR IF THE PROGRAM HAS NOT BEEN RUN since loaded (or since changes have been made), then *nothing* will be displayed.

The *order* of variables is an important factor in determining the speed of a program. Variables initialized first will be *located* first and executed the fastest.

To display the value of any array, type a simple for-next loop immediately after running a program...

```
]FOR I = 1 TO 10: PRINT A(I): NEXT
```

Multiple-dimensioned arrays can be analyzed like so...

```
]FOR I = 1 TO 10: FOR J = 1 TO 3:
PRINT A(I,J),: NEXT : NEXT
```

REPLACE CURSOR (control-F 9)

This option lets you select almost any kind of text screen cursor you could possibly think of!

Typing **control-F 9** will print "]CURSOR" on the screen. You may then select a cursor, 1-4.

Syntax:
]CURSOR [decimal number 1-4]

Examples:
]CURSOR 2
(Type **control-F 9 2 Return**)
Creates a **white square** cursor.

]CURSOR 3
(Type **control-F 9 3 Return**)
Creates a **blinking (on-off) underscore** cursor.

]CURSOR 4
(Type **control-F 9 4 Return**)
Creates a **non-blinking underscore** cursor.

]CURSOR 1
(Type **control-F 9 1 Return**)
Re-establishes your Apple's **normal cursor**.

The cursor you select will be in effect even in your programs' INPUTs and GETs.

To make things even more fun (and confusing), you may further alter cursors 2, 3, and 4. Cursor 2 is altered by poking values 0-255 into location 946. Cursors 3 and 4 are

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altered by poking 0-255 into location 947. Here are some pokes to play with: 972

Type each poke as you see it, then hit Return. The new cursor will appear immediately.

Select **cursor 2** and do one of the following:

POKE 946,64 or...
971 **POKE 946,128** or...
POKE 946,255 or...
POKE 946,0 (default value)

Select **cursor 3 or 4** and do one of the following:

POKE 947,32 or...
POKE 947,96 or...
POKE 947,160 or...
972 **POKE 947,255** or...
POKE 947,223 (default value)

CONTROL-CHARACTERS

(control-F **shift-9**)

Typing **control-F shift-9** toggles the display of control characters ON and OFF. When turned on, control characters (normally invisible) will appear in listings, catalogs, variable display, and so on, as inverse characters.

Double-Take features five "screen switches" which allow you to clear the screen, or reveal either page of hi-res, lo-res or text *without* clearing the screen.

CLEAR SCREEN

Typing **control-F 0** *(zero)* exposes and clears the text screen; useful when you are looking at graphics and want to enter text (similar to instantly entering "TEXT: HOME: NORMAL").

Don't be confused by the different keys for different Apples. Just refer to your Double-Take keychart.

HI-RES PAGE 1

Typing **control-F :** *(colon)* on an old Apple, or **control-F -** *(hyphen)* on a IIe, exposes the current full hi-res screen without clearing it.

LO-RES PAGE 1

Typing **control-F *** *(asterisk)* on an old Apple, or **control-F _** *(underscore)* on a IIe, exposes the current full lo-res screen without clearing it.

PAGE 2

Typing **control-F -** *(hyphen)* on an old Apple, or **control-F =** *(equals)* on a IIe, exposes page 2 of Text, Lo-Res, or Hi-Res, depending on the setting of the other screen switches.

SPLIT-SCREEN

Typing **control-F =** *(equals)* on an old Apple, or **control-F +** *(plus)* on a IIe, will reveal four lines of text at the bottom of the currently-displayed graphics screen.

```
      NEW DOUBLE-TAKE FEATURES

1. THE RED, ORANGE, AND BLUE MODULES
   NOW HAVE SHORTER VERSIONS. WHEN YOU
   RECONFIGURE DOUBLE-TAKE IF YOU DON'T
   WANT ALL THE FEATURES OF ONE OF
   THESE MODULES, YOU CAN SELECT THE
   SHORT VERSION AND SAVE MEMORY (1/2K,
   3/4K, 2 1/4K SHORTER RESPECTIVELY).

2. HEX/DEC CONVERT NOW SHOWS THE
   NEGATIVE DECIMAL EQUIVALENT OF ALL
   NUMBERS GREATER THAN 32767.

3. THE <SPACE BAR> MAY NOW BE USED TO
   SINGLE STEP THROUGH LISTINGS. THIS
   IS IN ADDITION TO USING ESCAPE,
   CONTROL-S, AND THE ARROW KEYS.

4. DOUBLE-TAKE NO LONGER OVERWRITES
   PAGE 3 OF MEMORY ($300-$3FF).
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
       NEW DOUBLE-TAKE FEATURES

5. THE TWO CURSOR POKE ADDRESSES HAVE
   BEEN MOVED FROM 946, 947 TO 971, 972
   (SEE PAGES 17 AND 18 OF THE DOCUMEN-
   TATION.)
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
            USING AMPERSAND

IF YOU'RE A REAL COMPUTER HACKER, YOU
MAY PREFER USING MNEMONIC CODES RATHER
THAN THE CONTROL-F <KEY> SEQUENCE.

YOU CAN DO THIS BY LOADING THE PROGRAM
CALLED "CONFIGURE DOUBLE-TAKE" AND
SETTING THE VARIABLE "AMPER" IN LINE 2
EQUAL TO 1 (AMPER = 1).

AFTER MAKING THE ABOVE CHANGE YOU MUST
RUN THE PROGRAM AND CONFIGURE THE
VERSION(S) OF DOUBLE-TAKE THAT YOU WANT
TO USE IN THIS MODE.

CONTROL-F WILL NO LONGER ACTIVATE ANY
OF THE FUNCTIONS. YOU WILL NOW HAVE TO
TYPE "&" FOLLOWED BY THE MNEMONIC.
   <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
          USING AMPERSAND
FOR EXAMPLE:

   &L          LISTS ENTIRE PROGRAM
   &L 100      LISTS ONE LINE
   &L 100,200  LISTS A RANGE OF LINES

YOU MAY HAVE NOTICED THAT THERE WAS NO
AMPERSAND COMMAND FOR CATALOG. TO DO A
CATALOG WITH 2-WAY SCROLLING JUST TYPE
"CATALOG" AS YOU NORMALLY WOULD.
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
        USING AMPERSAND

ALSO IF YOU ARE SO INCLINED, ANY OF THE
AMPERSAND COMMANDS MAY BE IMBEDDED IN
YOUR GPLE ESCAPE TABLES.

FOR INSTANCE, YOU COULD REDEFINE
"ESC L" TO BE "&L" RATHER THAN "LIST".

OR TO BE CONSISTENT WITH THE KEYCHART,
REDEFINE "ESC 1" AND "ESC !" TO BE "&N"
AND "&L".

WHATEVER YOU DO, MAKE A BACKUP FIRST!
O.K.?
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
          FUNCTION-SELECT KEY

IT HAS BEEN REPORTED THAT SOME PRINTERS
WON'T ALLOW USE OF CONTROL-F TO ENTER
FUNCTION-SELECT MODE.

IF YOU HAVE THIS PROBLEM, THE CONTROL
CHARACTER THAT ACTIVATES THIS MODE CAN
BE CHANGED FROM CONTROL-F TO ANOTHER
CONTROL CHARACTER OF YOUR CHOOSING.

THIS IS ACCOMPLISHED BY LOADING THE
PROGRAM "CONFIGURE DOUBLE-TAKE" AND
CHANGING THE VARIABLE "CTRL" IN LINE 2
TO AN ACCEPTABLE VALUE FROM 129 TO 154
(CONTROL-A THRU CONTROL-Z).

AFTER MAKING THE ABOVE CHANGE YOU MUST
RUN THE PROGRAM AND CONFIGURE THE
VERSION(S) OF DOUBLE-TAKE THAT YOU USE
WITH YOUR PRINTER.
   <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
         FUNCTION-SELECT KEY
SEE ALSO

"<7> PRINTER PROBLEMS AND THE AMPERSAND"

IN THE MAIN MENU.
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
           PRINTER PROBLEMS

** NOTE: IF DOUBLE-TAKE'S COMMANDS STOP
   WORKING AFTER CONNECTING YOUR
   PRINTER WITH A PR#1, THEN PERHAPS
   ENTERING THE FOLLOWING COMMAND WILL
   SOLVE THE PROBLEM:

   PRINT CHR$(9);"I"

   IF CONTROL-F STILL DOESN'T WORK,
   THEN YOU WILL HAVE TO USE THE METHOD
   DESCRIBED NEXT.
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

```
        TRICKS WITH AMPERSAND

AN UNDOCUMENTED FEATURE OF DOUBLE-TAKE
IS THAT THE AMPERSAND MAY BE USED TO
REPEAT THE LAST DOUBLE-TAKE COMMAND.

FOR INSTANCE, IF THE LAST DOUBLE-TAKE
FEATURE YOU USED WAS VARIABLE X-REF
(CONTROL-F 8) THEN TO REPEAT IT SIMPLY
TYPE

   & <RETURN>

IF YOUR PRINTER HAPPENS TO BE THE KIND
THAT HAS PROBLEMS WITH CONTROL-F, YOU
CAN USE THE AMPERSAND TO GET AROUND IT.
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

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TRICKS WITH AMPERSAND

HERE'S HOW IT'S DONE:

1. BEFORE CONNECTING THE PRINTER WITH PR#1, PERFORM THE FUNCTION (E.G. VARIABLE X-REF).

2. CONNECT THE PRINTER WITH PR#1 (IF IT'S IN SLOT 1).

3. TYPE "& <RETURN>".

THIS KIND OF TRICK CAN ALSO BE USED TO GET X-REF AND VARIABLE DISPLAY PRINTER LISTINGS WIDER THAN 40 COLUMNS (CONTRARY TO WHAT IT SAYS ON PAGE 16 OF THE DOCUMENTATION).

JUST SEND "CONTROL-I <WIDTH> N" TO THE PRINTER AFTER TYPING PR#1.

<RETURN> TO CONTINUE, <Q> TO QUIT

USING AMPERSAND

```
          USING AMPERSAND

&N [N1][,N2]       : NEW LIST
&L [N1][,N2]       : LIST (APPLE)
&E [N1][.N2]       : EXAMINE (HEX/ASC)
&D [N1]            : DISASSEMBLE
&# [N1]            : HEX/DEC CONVERT
&B                 : BASIC (MONITOR)
&H                 : HIDE (APPEND)
&M                 : MERGE (APPEND)
&R                 : RENUMBER
&A [N1][,N2]       : AUTO-NUMBER
&S                 : STATS (VITAL)
&P [N1]            : PEEK 2 BYTES
&X                 : X-REFERENCE
&V                 : VARIABLE DISPLAY
&O [N1]            : OPTIONAL CURSORS
&C                 : CONTROL CHARACTERS
&0                 : CLEAR SCREEN
&1                 : HI-RES PAGE 1
&G                 : LO-RES PAGE 1
&2                 : PAGE 2
&T                 : TEXT AND GRAPHICS
  <RETURN> TO CONTINUE, <Q> TO QUIT
```

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